RIVERSIDE ENERGY RESOURCE CENTER
SMALL POWER PLANT EXEMPTION
RESPONSE TO CEC DATA REQUESTS
04-SPPE-01

Technical Area: Air Quality

Project Operation Basis

BACKGROUND

In the SPPE Application (SPPE) project description (Section 2.5, pp. 14) it is stated that the plant will be permitted for approximately 2,700 hours in total from both units. This amounts to 1,350 hours per turbine. However, in the Air Quality discussion (Section 6.1.7.3, pp. 77) it states that the City of Riverside proposed to limit annual operations to 1,330 hours per year for each turbine, including 200 startup/shutdown hours and 20 hours of maintenance operations per year for each turbine leaving 910 hours for normal operation. Furthermore, the discussion of the Air Quality Modeling (Section 6.1.9.1, pp. 89) states that annual emission estimates were adjusted to "reflect the proposed operating schedule of 1,300 hours per year." Staff believes the basis for calculating emissions should be consistent with the proposed project description.

Data Request 1: Please confirm the design basis hours of operation (permitted hours and maximum operating hours) for the proposed turbines. Please revise emissions calculations and modeling, as required to make the operation basis consistent.

Response: The basis of operation is 1,330 hours per year per turbine. Applications for permits to construct and operate the turbines that were submitted to SCAQMD also reflect an annual operating schedule of 1,330 hours per turbine. Because the two turbines are identical, the final permit to be issued by SCAQMD will likely limit total operations from the facility to 2,660 hours per year or an equivalent fuel consumption limits, without individual turbine-based operating restrictions. The facility-wide limit reflects the fact that the two turbines are identical in capacity and emission profiles. The permit conditions imposed by SCAQMD will be an enforceable condition limiting operations to levels below the physical capacity of the turbines to operate 8,760 hours per year.

All maximum annual emission calculations, air quality impact analyses and health risk assessments reflect an annual operating schedule of 1,330 hours per turbine. The discrepancies identified by CEC in the text of the application report have been corrected to reflect 1,330 hours per year, per turbine.

RIVERSIDE ENERGY RESOURCE CENTER
SMALL POWER PLANT EXEMPTION
RESPONSE TO CEC DATA REQUESTS
04-SPPE-01

Technical Area: Air Quality

Transmission Line Construction Emission Calculations

BACKGROUND

The construction emissions for the transmission line are provided in the SPPEA text, Tables 6.1-30 and 6.1-31 (pp. 88). Additional supporting calculations are provided in Appendix 6.1-E. The disturbed soil wind erosion PM10 emissions provided in the tables do not appear to match the basis provided in Appendix 6.1-E. Please update the tables in the text or provide updated calculations in the Appendix.

Data Request 2: Table 6.1-30 shows daily transmission line construction Soil Wind Erosion PM Emissions of 0.1110 lbs/day, whereas Appendix 6.1-E Wind Erosion Daily PM10 emissions (1 site per day @0.1 acres/site) are shown as 0.0008 lbs/day. Please confirm that the daily wind erosion emission value listed in Appendix 6.1-E is the correct value.

Response: Daily wind erosion PM is 0.008 lb, which is equal to total project wind erosion emissions, divided by 55 days of operation (see response to data request #3). The tables in text incorrectly referenced emissions from grading operations. Table 6.1.30 has been revised to reflect daily erosion emissions of 0.008 lb. Total daily project PM10 emissions are 1.07 lb, excluding related on-highway emissions.

Data Request 3: Table 6.1-31 shows transmission line total construction Soil Wind Erosion PM Emissions of 0.001 lbs, whereas Appendix 6.1-E Wind Erosion Project PM10 emissions (55 sites total) are shown as 0.45 lbs. However, based on 0.0008 lbs/day/site the correct total transmission line construction value would seem to be 0.045 lbs. Please correct the calculations and provided updated results.

Response: The correct value for project fugitive emissions from disturbed soil wind erosion is 0.454 lb. The column (Daily PM10 Emissions" in Appendix 6.1-E must be adjusted to reflect the number of days for which the soil may remain undisturbed. For this analysis, a conservative 10 days of exposure per site was estimated. This reflects the time between initial excavation, pole setting and filling, old pole removing and final soil stabilization. This value is reflected in the second to last column in the table contained in Appendix 6.1-E (0.00825 lb/site). Total project wind erosion emissions equal 0.00825 lb/site, multiplied by 55 sites. Appendix 6.1.E has been updated to describe the logic used to determine daily and project emissions from line construction activities. Table 6.1.31 was also updated to correct the initial error.

RIVERSIDE ENERGY RESOURCE CENTER
SMALL POWER PLANT EXEMPTION
RESPONSE TO CEC DATA REQUESTS
04-SPPE-01

Technical Area: Air Quality

Cooling Tower Modeling

BACKGROUND

SPPE Table 6.1-14 provides the cooling tower dimensions and operational parameters, which include the dimensions (71'8"L x 13'11.25"W x 18'3.5"H), exhaust diameter (3-cells each 13 feet), air flow (613,000 ACFM), and exhaust temperature (90°F). However, Table 6.1-33, which provides the summary of the cooling tower parameters used in the air quality analysis, does not show these same parameters. Additionally, some parameters are missing in this table and others have been converted from English units to metric units incorrectly. Staff believes the basis for calculating emissions should be consistent with the equipment summary, and that the above inconsistencies will affect the air quality modeling results.

Data Request 4: Please update the cooling tower height, exhaust temperature, exhaust flow rate, and exhaust velocity (English units and metric units) both in Table 6.1-33 and in the air quality modeling. Please provide electronic copies of any new or revised modeling, and update tables, as necessary.

Response: The cooling tower height, exhaust flow rate, and exhaust velocity have been updated in the SPPE report and supporting analyses. The exhaust temperature was correct as stated. Revised electronic copies of the text, appendices, and modeling have been provided.

Data Request 5: Please update the cooling tower air quality (PM) modeling to reflect a 3-cell cooling tower with each cell being modeled individually using an appropriate estimate for the cell exhaust velocity (note: the existing modeling files show an inappropriately high exhaust velocity of over 23 m/s). Please provide electronic copies of any new or revised modeling runs.

Response: The cooling tower parameters have been revised to reflect a 3-cell configuration. Each cell is addressed as a separate point source and the associated flow rates, emission rates, and circulations rates have been adjusted accordingly. Revised electronic copies of the text, Appendices, and modeling have been provided.

RIVERSIDE ENERGY RESOURCE CENTER
SMALL POWER PLANT EXEMPTION
RESPONSE TO CEC DATA REQUESTS
04-SPPE-01

Technical Area: Air Quality

Normal Operations Modeling

BACKGROUND

SPPE Table 6.1-32 shows the turbine exhaust velocity of 22.0 m/s (72.3 ft/s); however in Appendix 6.1-F, the 24-Hour PM Run shown in file RiversideERC02.dat used a velocity of 23.38624 m/s. Staff requires additional information to understand the basis for the velocity used in this 24-Hour PM Run. Also while parts of this modeling and output (.lst) file were included in the Appendix of the AFC, it was not included in the electronic modeling files; and it would seem that it was replaced by the file named RiversideCEC(C)02.dat and .lst. Further this file given in the Appendix does not include the cooling tower.

Data Request 6: Please provide the basis for using a velocity of 23.38624 m/s for the 24-Hour PM Run, or confirm that we should revise the PM10 impacts shown in Table 6.1-35 using the results from the RiversideCEC02.lst file, or any revised modeling files needed to respond to other data requests. Please confirm if any other values in Table 6.1-35 need to be revised based on differences between the modeling provided in the Appendix and the electronic modeling files.

Response: The correct velocity is 22.0 m/s. The appropriate modeling runs have been updated. In addition, all affected results have been revised. Furthermore, revised text, Appendices, and modeling have been provided.

BACKGROUND

SPPE Table 6.1-35 shows the summary of air quality impacts for normal year operations. This information appears to be based on Table 6.1-23 (Criteria Pollutant Emissions Summary Facility Total RERC), Table 6.1-34 (Air Dispersion Modeling Results Summary RERC), as well as additional information provided in Section 6.1.9.2 for normal facility operations. Appendix 6.1-F also presents emission rates on a per unit basis; however, the turbine rates are twice as much as what is shown in Tables 6.1-18 through 6.1-21 (also per unit rates). Based on this information, the project impacts

presented in Table 6.1-35 do not appear to be consistent. As such, project impacts for several pollutants appear to be twice as much as calculated. For others (e.g. NO_2 annual, Sulfate 24-Hour) the basis is unclear, especially considering that the air quality basis is for 8760 hours, whereas the project will operate for only 1,330 hours (See DR #1 above). It should also be noted that startup emissions are used for 1-hour NO_x and CO emissions, with the assumption that this is "the most conservative estimate." Based on the information presented in Table 6.1-23, maintenance operation appears to provide the highest hourly emissions for both NO_x and CO.

Data Request 7: Please provide detailed calculations for determining the project normal operational impacts, including determination of average emissions rates (8-hour, 24-hour, and annual), as presented in Table 6.1-35. Update Table 6.1-35 as necessary.

Response: The dispersion models that were conducted in support of the air quality impact analyses included 8760 hours per year of meteorological data, even though the turbines can be operated for only 1330 hours per year. This ensured that for short-term impacts, the most undesirable meteorological conditions were considered. To determine annual average impacts, total emissions over 1330 hours per turbine, were averaged over 8760 annual available operating hours per turbine.

Two sets impact analyses were conducted, one for normal operations and one for commissioning operations. For the normal operating year analysis, short-term (hourly) impacts reflected startup emissions. CEC is correct in that maintenance hour operations may emit higher levels of NOx and CO than startup operations. Conceivably, emissions from maintenance hour operations can be as high as emissions from commission hour operations and their resulting short-term ambient air quality impacts are reflected in the air quality impact analysis that was conducted for commissioning operations.

Emissions from maintenance activities are included in the average emissions that were used to determine annual impacts during normal operating years.

The spreadsheets in Appendix 6.1-G now include formulas used to determine average emissions.

Data Request 8: Annual emission estimates are said to be adjusted to reflect the proposed operating schedule of 1,300 hours per year (See DR #1). Please provide detailed calculations to show how emissions and emission factors are adjusted.

Response: Calculation methodology is now included in Appendix 6.1-G.

RIVERSIDE ENERGY RESOURCE CENTER
SMALL POWER PLANT EXEMPTION
RESPONSE TO CEC DATA REQUESTS
04-SPPE-01

Technical Area: Air Quality

Construction Emissions and Dispersion Modeling

BACKGROUND

In the SPPE, PM10 impacts of the construction project are estimated to be 16.97 µg/m3 based upon a maximum 24-hour average and 0.41 µg/m3 based upon an annual arithmetic mean" (Section 6.1.9.4, pp. 98 and Table 6.1-39). Additionally, in the SPPE (pp. 98) it is stated that "model output for the annual mean concentrations [for PM10] were scaled to reflect lower average hourly emissions over the course of the project (154 days). The uncorrected air dispersion model results reflect 154 construction days with emission rates equal to the maximum November daily emission rate." Staff requires additional information to understand the reasoning and scaling calculation used for PM10.

Data Request 9: Appendix 6.1-H shows annual PM emissions of 2.33196 µg/m3, which does not match the value of 0.41 µg/m3 provided in the text and presented in Table 6.1-39 and Appendix 6.1-I. Please provide the reasoning and scaling methodology used to determine the annual construction emission PM10 impacts.

Response: The value of 0.41 µg/m3 was incorrectly used in Appendix 6.1-I and in Section 6.1.9.4 of the report. The intent was to use 0.41 as a scaling factor in the air quality impact analysis. Maximum daily emissions in November were used to conduct the air dispersion model in order to ensure that 1-hr., 3-hr., 8-hr., and 24-hr. impacts were not underestimated. Because daily emissions decrease significantly after initial earthmoving operations are complete in late November, the use of November daily emissions to determine annual average impacts world provide an inaccurate overestimation of impacts. To provide more accurate annual air quality impact assessment results, the results of the dispersion model, were adjusted by the ratio of total construction project PM emissions to the product of maximum daily emissions, times number of construction days. The following reflects the adjustment that was to be made:

Annual Impact = ISC3 annual result x $\frac{\text{total project emissions}}{\text{Max. daily em.x 154 days}}$

= 2.33196 µg/m3 x $\frac{\text{1091 lb/project}}{\text{17.2 lb/day x 154 days}}$

= 0.9658 µg/m3

Appendix 6.1-I and Section 6.1.9.4 of the report have been revised to correct the error and to clarify the formula used to make the scaling adjustment used to determine annual impacts.

BACKGROUND

The construction modeling files use distributed volume sources to model the construction equipment engine exhaust and non-wind erosion fugitive dust emissions. However, the methodology of how the volume source size and emission rates were determined was not provided. While staff understands the general rationale used in creating these volume sources we need additional information to complete our review of the construction modeling input files. For example, the emission values attributed to each volume source are different and the magnitude for each point does not match our understanding of the site layout (staff would have assumed that the highest emissions should have been attributed to the volume source located near the main turbine complex construction area; however, that is not the case). Additionally, staff cannot balance the PM10 emission rates in the construction modeling file inputs to the construction fugitive dust emission estimates provided in Table 6.1-26 and Appendix 6.1-D.

Data Request 10: Please describe the methodology for the construction volume source location and size selection and emission rate determination for each volume source. Please use the modeling file RiversideCEC04.dat as an example of how volume source input parameters were determined.

Response: Four volume sources were identified to reflect combustion emissions from the project. An additional four volume sources were identified to parcel earthmoving PM emissions somewhat in alignment with the combustion emissions. A single area source was identified to reflect wind erosion of disturbed surfaces. The sources are summarized in the following table.

Construction Emissions
Defined Volume and Area Sources

Source Identification	Description
Volume Source #1	Combustion emissions near turbine pads
Volume Source #2	Combustion emissions near compressor, NH3 tank, etc.
Volume Source #3	Combustion emissions near station
Volume Source #4	Combustion emissions near admin. Building
Volume Source #5	Earthmoving PM emissions near turbine pads
Volume Source #6	Earthmoving emissions near compressor, NH3 tank, etc.
Volume Source #7	Earthmoving emissions near station
Volume Source #8	Earthmoving emissions near admin. building
Area Source #1	Wind erosion

Emissions were allocated to the nine sources, based upon anticipated construction operations, fuel consumption and project layout. Volume source 1 (combustion emissions near turbine pad) was assumed to reflect 25% of combustion emissions, based upon the equipment inventory and operating schedule. Volume source 2 at the north end of the site was assumed to reflect 40% of combustion emissions. Although this source represents the construction of only minor facilities, it is the area in which equipment lay-down will occur. Construction equipment will be used to bring materials to and from the area designated as volume source #2. This area also represents some of the lower elevations of the site. Earthmoving equipment will be present while pushing soil to the area and also during compacting operations. The remaining combustion emissions were parceled to volume sources #3 (20%) and #4 (15%).

25% of unpaved road dust was allocated to the area in which the turbines will be set (volume source #5) to complement the fuel consumption allocation. 35% was allocated to the area at the north end of the site where the lay-down area and some potential parking may exist (volume source #6). The remaining 40% of road dust

emissions were allocated evenly between the area surrounding the station and administrative building (volume sources #7 and #8).

40% of grading and bulldozing PM emissions were allocated to the area designated as volume source #6. Again, this reflects the lower elevations of the site. The remaining 60% of grading PM emissions was evenly distributed between volume sources #5, #7 and #8.

40% of PM emissions from dirt loading operations were allocated to volume source #5. This is the area where the turbines and cooling towers will be constructed and likely reflects a large portion of excavation for foundation work. The remaining PM emissions from loading operations were evenly allocated to sources #6 through #8.

All wind erosion emissions were allocated to area source #1.

Appendix D of the report has been updated to include the calculations used to allocate construction emissions to the nine sources that were defined in the dispersion model and the ambient air quality impact analysis.

RIVERSIDE ENERGY RESOURCE CENTER
SMALL POWER PLANT EXEMPTION
RESPONSE TO CEC DATA REQUESTS
04-SPPE-01

Technical Area: Air Quality

Turbine Commissioning

BACKGROUND

Table 6.1-18 (pp. 75) presents the initial commissioning emission estimates for each gas turbine and notes that commissioning is expected to last 24 hours per day for a total of 200 hours per turbine. Appendix 6.1-B provides a spreadsheet entitled "Facility Total Potential to Emit – Commissioning Year", which shows commissioning emissions for the project. Staff has additional questions regarding initial commissioning.

Data Request 11: For the commissioning spreadsheet in Appendix 6.1-B, the normal operational emissions are stated to last 730 hours with commissioning lasting 200 hours. If we assume 200 hours for startup, 200 hours for shutdown, and 20 hours for maintenance (total of 1,350), the limit of 1,330 hours per year per turbine would be exceeded (see DR #1 above). Additionally, the "normal" emissions do not appear to match (see the calculation below for NOx). If we reduce the number of "normal" operational hours to 714 hours (*shown in italics*), the values provided in Appendix 6.1-B appear to match more closely. Please provide additional explanation as to the basis for determining first year facility emissions.

NOx - 1st year	Operation Hrs	MHC, lbs/hr	MHC for 2 turbines	APTE, tpy	Table in App 6.1-B	AHC, lbs/hr	MHU for 2 turbines	AA, lbs/yr	Table in App 6.1-B
Normal	730	4.49	8.98	3.2777	3.2	4.27	8.54	6234.2	6098
Normal (revised)	*714*	*4.49*	*8.98*	*3.20586*	*3.2*	*4.27*	*8.54*	*6097.56*	*6098*
Commissioning	200	44.93	89.86	8.986	9	31.45	62.9	12580	12580
Startup	200	16.47	32.94	3.294	3.3	11.53	23.06	4612	4612.7
Shutdown	200	6.6	13.2	1.32	1.3	4.62	9.24	1848	1849.1
Maintenance	20	44.93	89.86	0.8986	0.9	31.45	62.9	1258	1256
Total	1350			17.7763	17.71			26532.2	26398
Total (Revised)	*1334*			*17.704*				*26,396*	

Response: The spreadsheet in Appendix 6.1-B has been revised to show 710 normal operating hours, plus 20 maintenance hours.

Data Request 12: Please provide a breakdown of turbine commissioning activities, emission factors, and emissions associated with each activity. See example table below from the Modesto Irrigation District Electric Generating Station (MEGS) Project, which is a simple-cycle plant also using General Electric LM6000 SPRINT turbines.

MID MEGS Project Commissioning Schedule Example Table

Commissioning Activities	Operation Duration [a]	Fuel Use [b]	NO_x	CO	VOC	PM_{10}	SO_x
(per CTG)	(Hours)	(MMBtu/h, HHV)	Hourly Emissions, lb/hr				
Full Speed, No Load Test	4	100	36.24	39.72	3.75	3.00	0.1
20% Load Test, no SCR or oxidation catalyst	20	100	15.22	22.51	2.00	3.00	0.1
Full Speed, No Load Test (if necessary)	24	100	36.24	22.51	2.00	3.00	0.1
Multiple Load Test, full SCR and oxidation catalyst	48	500	29.45	6.62	1.25	3.00	0.5
Total, lbs (2 CTGs)	192	---	5,465	2,934	326	576	58

Response:

The construction contractor has not yet finalized schedules with equipment vendors, but has provided an overview of past commissioning activities at similar projects. For each turbine, commissioning will commence with an approximate 5-hour run at full speed with no load to test the integrity of the turbine and the control system housing. The unit will then be turned off and catalyst will be installed. Next, the turbine will be restarted with the generator coupled and slowly brought up to 100% load. This phase can take as little as one hour, but may also be repeated over ten hours of operation. From that point forward, most remaining testing is to fine-tune operations and the SCR system. It is envisioned that remaining commission operations will be at or near full load.

When calculating emissions in Appendix 6.1-B of the SPPE application, we assumed 200 hours at 100% load per turbine and no operation of emissions control equipment, even though we would anticipate most operations to have varying degrees of emissions control. Our methodology reflects SCAQMD permitting methodology that requires the applicant to assume 100% fuel consumption rates with no level of emission control during commissioning operations when determining air quality impacts and NOx offset requirements. Applicants must assume 0% emissions control until the CEMS certification tests are conducted.

Based upon the part-load emissions data provided for similar LM6000 installations, and reflecting SCAQMD's permit methodology we would expect verifiable commissioning emissions to be more in line with what is summarized in the following table.

Commissioning Emissions per Turbine (lb/hr)

Operation	Hours		NOx	CO	VOC	PM10	SOx
Full Speed, no Load, no control equipment	5		36.24	39.72	3.75	3.0	1.62
Multiple Load with SCR / oxidization (uncontrolled assumed)	10		29.45	6.62	1.25	3.0	1.62
Full Load with SCR /oxidization (uncontrolled assumed)	185		44.93	6.89	0.94	3.0	1.62

Data Request 13: Please confirm whether or not the initial commissioning for the two turbines will be performed in parallel.

Response: The initial stages of commissioning where emissions control systems are most likely to be absent are likely to be conducted sequentially. Later stages during which emissions control systems can reasonably be expected to be effective will likely overlap.

Ambient air quality analysis results indicate that simultaneous operation of both turbines during commissioning operations will not cause a violation of an air quality standard for NO_2, SO_2, sulfates, and CO even if control systems are not functioning. The analysis also indicates that simultaneous operation of both turbines during commissioning operations will not significantly add to an existing violation of $PM_{2.5}$ and PM_{10} standards.

BACKGROUND

SPPE Table 6.1-36 shows the summary of air quality impacts for commissioning operations. This information appears to be based on Table 6.1-23 (Criteria Pollutant Emissions Summary Facility Total RERC), Table 6.1-34 (Air Dispersion Modeling Results Summary RERC), as well as additional information provided in Section 6.1.9.2 for commissioning operations. Appendix 6.1-G also presents emission rates on a per unit basis; however, the turbine rates are twice as much as what is shown in Tables 6.1-18 through 6.1-21. Based on this information, the project impacts presented in Table 6.1-36 do not appear to be consistent. As such, project impacts for several pollutants appear to be twice as much as calculated. For others, the basis is unclear. For example, it is stated that 8-hour CO emissions are an average of typical startup, shutdown, and normal operation. This does not include commissioning, which would be expected to last over an 8-hour period (200 hours per year for commissioning).

Data Request 14: Please provide detailed calculations for determining the project commissioning impacts, including determination of average emissions rates for 8-hour, 24-hour, and annual periods, as presented in Table 6.1-36.

Response: The emission rates in Appendix 6.1-G were incorrectly stated. A new air quality impact analysis has been completed for commissioning operations and Table 6.1-36 has been revised. Additionally, air quality impact analyses have been conducted for the annual averaging period.

Emission calculations to determine annual averages are included with the spreadsheets contained in revised Appendix 6.1-G. The calculation methodology reflects that used to determine annual average impacts from normal operations, but reflect the higher emissions that will occur due to the 200 hr commissioning allowance for each turbine.

The short-term (1-hr, 3-hr, 8-hr and 24-hr) impacts that may occur during commissioning operations in the first year of operation also reflect the short-term impacts that may occur during maintenance operations in any year.

RIVERSIDE ENERGY RESOURCE CENTER
SMALL POWER PLANT EXEMPTION
RESPONSE TO CEC DATA REQUESTS
04-SPPE-01

Technical Area: Air Quality

Air Quality Documentation

BACKGROUND

In reviewing Appendix 6.1 of the SPPE, it was discovered that several pages have illegible data due to color copies being printed as black and white copies; and this is also true of the scanned electronic version.

Data Request 15: Please resend the following information in color, or without color (shading), or provide the original unscanned electronic files: A) Appendix 6.1-B: El Colton Turbine Shutdown Emissions (11/26/2002). Column headings are unreadable; B) Appendix 6.1-D: Tables entitled, "Construction Equipment Summary of Typical Weights", "Monthly Site Construction Equipment Use", and "Site Daily Combustion Equipment Operating Schedule"; and C) Appendix 6.1-E: "Transmission Line Construction Combustion Emissions."

Response: All appendices have been rescanned and resubmitted. When possible, background shading has been eliminated to ensure clarity. All spreadsheets can also be available to CEC via electronic media upon request.

RIVERSIDE ENERGY RESOURCE CENTER
SMALL POWER PLANT EXEMPTION
RESPONSE TO CEC DATA REQUESTS
04-SPPE-01

Technical Area: Air Quality

Turbine Startup/Shutdown

BACKGROUND

The SPPE (pp. 75) states that turbine startup hourly emissions reflect a 10-minute process. It is noted that if the SCR system is initiated in advance of turbine startup, full operation and effectiveness of the SCR system may be achieved in the tenth minute of operation. Emissions assumed for the purpose of this application, reflect the possibility that turbine startup cannot be delayed until the vaporization skid is initiated. The resulting estimated startup emissions reflect an additional 30-minute period during which SCR and CO oxidation systems become fully effective. Daily emissions reflect 4 startup events per turbine, per day. Annual emissions reflect 200 startup hours per turbine, per year. For turbine shutdown, turbine vendor estimates show that the shutdown process takes approximately 8 minutes. Normal operating emission rates are assumed to occur the preceding 52 minutes of the shutdown hour. Daily emissions reflect 4 shutdown events per turbine, per day. Annual emissions reflect 200 shutdown hours per turbine per year. Staff needs additional information and clarification to complete the review of the air quality impact analysis.

Data Request 16: Please identify the maximum number of startup and shutdown events that theoretically could occur in one hour; and please identify an acceptable limitation on the maximum number of startup and shutdown events that may occur in one hour per turbine. Please provide revised maximum hourly startup/shutdown emissions and modeling information, as necessary.

Response: Based upon direction provided by CEC during the public workshop on May 26, 2002, RPU understands that the basis of the data request is to determine the number of voluntary startups that would occur in any hour, and not the number of restarts that would be attempted due to equipment malfunction. Based upon this understanding, RPU believes that only one startup per turbine would occur in a given hour. The air quality analysis and health risk assessment indicate that both turbines can be started in a given

hour without causing unacceptable air quality or acute health risk impacts.

RIVERSIDE ENERGY RESOURCE CENTER
SMALL POWER PLANT EXEMPTION
RESPONSE TO CEC DATA REQUESTS
04-SPPE-01

Technical Area: Air Quality

RTC Information

BACKGROUND

The SPPEA states that offsets will be required for all potential NOx emissions, including emissions from emergency equipment, per SCAQMD Rule 2005. The City of Riverside agrees to secure adequate RECLAIM Trading Credits (RTCs) to offset the first year's operations, which amounts to 39,464 pounds. The applicant has not submitted enough information to demonstrate that it can obtain the necessary first year RTCs.

Data Request 17: Please provide a list of the RTCs to be used by the City of Riverside to offset the proposed project for the first year of operation.

Response: SCAQMD has designated two RTC trading zones for the basin. One is the coastal zone. RTCs from this zone can be used throughout the air basin, reflecting local pollutant transport and ozone formation patters in the basin. The second zone is the inland zone. RTCs from this zone can be used only to offset emission increases at facilities located within the inland zone.

The Riverside Energy Resource Center is located in the inland zone of the air basin. It allowed pursuant to SCAQMD Rule 2007 to purchase either inland or coastal RTCs. RPU has purchased 20,346 lbs of NOx RTCs for the year 2005 and every year thereafter. RPU has also purchased an additional 19,500 NOx credits to accommodate commissioning operations in 2005. All of these transactions have been submitted to SCAQMD to be registered pursuant to SCAQMD Rule 2007. The following Table provides a summary of the RTCs acquired to offset NOx emissions from the Riverside Energy Resource Center.

Amount of NOx	Source/Description

Emission Offsets	
9,500 lb year 2005+	Inland credits sold by Intermetro in Rancho Cucamonga.
4,000 lb year 2005+	Inland credits sold by Pomona Paper in Pomona from equipment shutdown.
2,000 lb year 2005+	Coastal credits sold by West Newport Oil in Costa Mesa from process change.
4,500 lb 2005+	Pending
4,846 lb year 2005+	Coastal credits sold by Mission Dye House in Los Angeles from a shutdown.
1,000 lb year 2005 only	Coastal credits sold by Ocean Air.
18,500 lb year 2005 only	Costal credits sold by Calpine.

RIVERSIDE ENERGY RESOURCE CENTER
SMALL POWER PLANT EXEMPTION
RESPONSE TO CEC DATA REQUESTS
04-SPPE-01

Technical Area: Air Quality

Non-Attainment Pollutant Offsets

BACKGROUND

It is Energy Commission staff policy that in order to make a finding of no significant air quality impacts a project needs to offset, at a minimum 1:1 ratio, all of its nonattainment pollutants (including precursors). The South Coast Air Basin is an extreme ozone nonattainment area (1-hour standard), a severe ozone non-attainment area (8-hour standard), and a serious PM_{10} non-attainment area. The finding of no significant impacts is required for the Energy Commission to grant a SPPE. However, the SPPE application has only proposed the use of NO_x RTCs to offset NO_x emissions. In order to make a finding of no significant impacts staff needs to understand how the applicant proposes to mitigate its other operating emissions of non-attainment pollutants and precursors (VOC, PM_{10}, and SO_2).

Data Request 18: Please discuss how the applicant proposes to mitigate all of its operational nonattainment pollutants and precursor emissions.

Response: Potential annual emissions of VOCs, CO, SOx and PM10 are below thresholds established by SCAQMD to trigger the need to purchase external offset credits.

Although the proposed facility is exempt from having to purchase emission offset credits, the emission increase must still be offset pursuant to SCAQMD Regulation XIII. For facilities like the Riverside Energy Resource Center, SCAQMD maintains a reserve of credits that reflect permanent and enforceable emission reductions and makes them available for the project.

SCAQMD funds the credit reserve through equipment and facility shutdowns. Prior to placing the credits in the reserve, SCAQMD discounts them by 20% to 80%. When applied to an emission increase, SCAQMD does so at a ratio of 1.2:1.

SCAQMD must periodically demonstrate to EPA and CARB that its offset program is in compliance with state ad federal offset requirements. SCAQMD completed its most recent demonstration in April of 2004 and presented it findings to the Governing Board on April 2, 2004. AQMD's analysis indicates that its program is in compliance with state and federal regulations and that emission increases are offset at a ratio of at least 1.0:1. The offset reserve accounts contain approximately 88,000 lb/day VOC; 36,000 lb/day SOx; 48,000 lb/day CO and 86,000 lb/day PM10. The RERC project will draw up to 56 lb/day VOC; 63 lb/day SOx, 499 lb/day CO; and 171 lb/day PM10.

RIVERSIDE ENERGY RESOURCE CENTER
SMALL POWER PLANT EXEMPTION
RESPONSE TO CEC DATA REQUESTS
04-SPPE-01

Technical Area: Air Quality

Cumulative Impacts Assessment

BACKGROUND

It is staff's understanding that, with assistance from Energy Commission air quality personnel, no significant new sources of air pollution were identified within 6 miles of the proposed RERC facility; therefore, no cumulative impact modeling analysis was performed. However, the SPPE application did not detail these findings or provide any mention of cumulative air quality impacts, so the results of this cumulative impacts assessment have not been made public. The applicant must provide a summary of their cumulative impacts assessment findings and identify sensitive receptors within 6 miles of the proposed project.

Data Request 19: Please provide a short discussion of the methods and findings of the air quality cumulative impacts assessment.

Response: CEC and SCAQMD conducted a search of all permits issued to facilities located within a six-mile radius of the project and found that no permits constituting an emissions increase have been issued within a one-year period. CEC also searched recently issued environmental impact reports and found that none exist for projects within a six-mile radius of the project. CEC subsequently concluded that the cumulative impact analysis is not warranted. Correspondence related to the search and CEC's determination are included in revised Appendix 6.1-G of the SPPE application report.

Data Request 20: Please identify sensitive receptors within 6 miles of the proposed project. This listing shall at minimum include the addresses of schools, hospitals, senior citizen facilities, and day care centers together with their respective distances from the project site.

Response: CEC initiated the search of sensitive receptor addresses. The applicant is now in the process of completing the search and will forward the receptor list to CEC as soon as it is complete. It is anticipated that the list will be complete by June 25, 2004.